

INSTANT NONFAT DRY MILK POWDER – Background Information

This background information accompanies two duplicating masters for using instant nonfat dry milk powder:

- ***How to Use Instant Nonfat Dry Milk Powder – Tips and Recipes*** includes nutrition and storage information along with recipes for beverages, main dishes and breads.
- ***Dry Milk Powder – Good for You and Easy to Use*** is intended for low-literacy readers.

RECONSTITUTING (MIXING) INSTANT NONFAT DRY MILK POWDER

- For about one cup: Combine $\frac{1}{3}$ cup nonfat dry milk powder with 1 cup water.
- For about one quart: Combine $1\frac{1}{3}$ cups nonfat dry milk powder with $3\frac{3}{4}$ cups water.
- For best results, put water in screw-top jar, add nonfat dry milk powder and shake until dissolved. Or, combine powder and water in a pitcher and stir. Don't mind the bubbles; they will disappear after a while. Refrigerate; the flavor is better when the milk is cold.
- Most dry milk today is instant and dissolves easily in water. Non-instant dry milk powder does not dissolve well and is best suited for inclusion in a recipe as a dry ingredient (such as casseroles or baked goods).

NUTRITION

- Nonfat dry milk is made by removing water from pasteurized fat free milk. It contains all the protein, vitamins and minerals found in fresh, fluid nonfat milk. Processing from fluid to dry milk has minimal impact on its nutritional value.
- Nonfat dry milk is an excellent source of **calcium**.
- Dry milk is an excellent **high-protein** food that is low in cost. When added to main dishes, it can extend the more expensive protein of meats, fish, poultry and eggs. It can also be used in combination with dried beans, peanut butter and cheese. Adding nonfat dry milk powder to beverages and other recipes is an effective way to boost the protein content of the meal. This is especially helpful for people who need to fortify their diets with extra protein and calories without adding fat. One serving ($\frac{1}{3}$ cup) of nonfat dry milk powder has 8 grams of protein, which is roughly equivalent to:
 - 1 ounce cooked beef, pork, turkey or chicken
 - 1 egg
 - 1 ounce tuna or other fish
 - 2-inch cube of cheddar cheese
 - 2 tablespoons peanut butter
 - $\frac{1}{2}$ cup cooked dried beans or peas
- There is **no fat** in nonfat dry milk.
- Most nonfat dry milk has added **Vitamin D** and **Vitamin A**, just like regular milk. Check the label to be sure.
- One cup of reconstituted milk contains **about 80 calories**.
- People with **lactose intolerance** may have trouble with nonfat dry milk. Ask them to try $\frac{1}{2}$ cup to 1 cup of milk with meals. Many lactose maldigesters can handle this.



- Health professionals recommend that **children under 2 years of age** drink whole milk or reduced fat (2%) milk instead of fat free milk. Infants and toddlers need the fat from milk, which is a large part of their daily diet, to help their brains and bodies develop normally. But, it is fine for young children to eat foods that contain nonfat dry milk as an ingredient.

CALCIUM IS IMPORTANT

- Throughout the life cycle, calcium is needed to promote good health and prevent disease. **Osteoporosis** is a preventable condition that has its roots in childhood and the teen years, which are critical times for building bone mass. Dairy calcium along with lots of fruits and vegetables has been shown to lower blood pressure in many people with moderate **hypertension**. Adequate calcium in the diet may help prevent **colon cancer**.
- Most Americans do not meet their needs for calcium. Recommended daily intake is:

<u>Age</u>	<u>Calcium</u>	<u>Servings of milk</u>
Children (4-8 years)	800 mg	3 cups
Pre-teens and teens (9-18 years)	1,300 mg	4 cups
Adults (19-50 years)	1,000 mg	3 cups
Older adults (50+ years)	1,200 mg	4 cups
- Instant nonfat dry milk contains 300 mg (milligrams) of calcium per serving. A serving equals 1/3 cup dry powder or 1 cup after combining with water.
- The easiest way to get enough calcium is to include milk or other dairy products at every meal.
- Using nonfat dry milk in cooking is an excellent way to increase the calcium content of the total diet. This is especially important for individuals who don't care to drink milk as a beverage.

STORAGE

- Keep unopened boxes and packages in a cool (under 70° F), dry place. Unopened, it can be stored for one year. Some flavor changes may occur if storage and shipping temperatures reach 90° F or above for long periods of time.
- After opening the package, keep dry milk powder dry. Storing it covered will prevent flavor changes which can occur over time if it has contact with air. Refrigeration isn't necessary until it is reconstituted (mixed with water).
- After reconstituting the dry milk with water, store in the refrigerator. It will remain fresh for up to seven days if kept refrigerated and should be treated the same as other fluid milk products. Keep it covered so it won't pick up flavors from other foods in the refrigerator.
- Because nonfat dry milk powder has no moisture and no fat, it is safe and shelf-stable for a long time. Flavor changes may occur after many months, but that doesn't mean that it has "gone bad." If the flavor of the reconstituted milk becomes flat, it is still safe and nutritious to use as an ingredient.
- Nonfat dry milk has a very low bacterial count. Avoid introducing bacteria from other sources through cross-contamination. Keep it in its original box – there's no need to transfer it to another container for storage.

TIPS FOR USING NONFAT DRY MILK POWDER IN OTHER FOODS

- In **cooked cereals**, add 3 tablespoons of nonfat dry milk powder to each ½ cup of dry cereal (such as oatmeal, Cream of Wheat®, Malt O'Meal® or other cereal grain) prior to cooking. Use the same amount of water as called for in the package directions when cooking the cereal.
- For a thicker and more nutritious **milkshake**, add 1 or 2 tablespoons of nonfat dry milk powder per serving.
- Substitute nonfat dry milk powder for non-dairy creamer in **coffee and tea** for more calcium and no fat.
- Add ¼ cup nonfat dry milk powder to each cup of fluid milk when making **biscuits, muffins, pancakes, yeast breads, cookies and cakes**. (This will cause the products to be firmer and to brown faster. Lowering the baking temperature or reducing the amount of sugar will reduce this browning effect.)
- Add ½ cup nonfat dry milk powder when reconstituting **canned soup**.
- Add ½ cup nonfat dry milk powder per can of condensed soup when making **casseroles**, such as tuna and noodles with cream of mushroom soup.
- Add nonfat dry milk powder when making **mashed potatoes**, using 1/3 cup per 4 servings.
- Add ¼ cup nonfat dry milk powder for every pound of **ground meat** before browning. Add 2/3 cup nonfat dry milk powder for every pound of ground meat when making meatloaf or meatballs.
- Add ¼ cup nonfat dry milk powder to each cup of fluid milk, or add ½ cup nonfat dry milk powder to each cup of water or broth when making **puddings, custards, gravies and sauces**. (This may make the product slightly thicker.)

TIPS FOR DRINKING NONFAT DRY MILK

- Some families prefer to combine reconstituted dry milk with regular fluid milk. This could be nonfat (fat free), low fat (1%) or reduced fat (2%) milk.
- Refrigerate reconstituted milk before drinking; it tastes better.
- Try adding a pinch of sugar or a few drops of vanilla to help a family adjust to the slight difference in flavor.
- Add some flavoring such as chocolate or strawberry syrup or even Kool-Aid®.

FOOD DEMONSTRATIONS

- Providing samples of the recipes and showing how easily instant nonfat dry milk powder can be used will encourage people to use it. Tasting is believing!

FOR MORE INFORMATION

- Contact your local Dairy Council for nutrition education resources and materials, including tips for including dairy products as part of a healthful diet. To locate the state Dairy Council office nearest to you, call National Dairy Council in Rosemont, Illinois, at 847-803-2000.
- Contact your local Cooperative Extension county office for additional resources in teaching economical and nutritious eating.

How to Use Instant Nonfat Dry Milk Powder – Tips and Recipes

Nonfat dry milk powder is an economical food that can add needed calcium to your family's diet. Give these tips and great-tasting recipes a try!

What is it? Instant nonfat dry milk powder is made by removing the water from regular pasteurized fat free milk. It dissolves easily in water and can be used just like regular milk for drinking or as an ingredient in recipes.

How should it be stored? Unopened packages of nonfat dry milk can be stored on the shelf for up to one year. After opening the package, use it within several months for best flavor, but it will remain safe and nutritious for a year. Keep it in its original container in a cool, dry place. Once the dry milk is mixed with water, treat it like fresh milk and keep it in the refrigerator for five to seven days.

Is it as nutritious as regular milk? Yes! Nonfat dry milk is an excellent source of calcium. Calcium is needed by adults, children and teens for strong bones. Dry milk has all the same nutrients as regular fluid milk – calcium, vitamin D, vitamin A, B-vitamins, protein and more – and no fat.

Mixing and Measuring Nonfat Dry Milk

Combine water and powder in a jar with a tight-fitting lid and shake it. Or, mix it in a pitcher. Refrigerate it before drinking for better flavor.

1/3 cup nonfat dry milk powder + 1 cup water = about 1 cup nonfat milk

1 1/3 cup nonfat dry milk powder + 3 3/4 cups water = about 4 cups (1 quart) nonfat milk

After mixing the milk, some people prefer to add fresh, fluid milk. Others add a pinch of sugar, a few drops of vanilla extract or chocolate syrup to help family members adjust to the slight difference in flavor.



Nutritious Quick Tips



- *In cooked cereal:* Add 3 tablespoons of nonfat dry milk powder to each 1/2 cup of dry cereal (such as oatmeal, Cream of Wheat®, Malt O'Meal® or other cereal grain) before you cook it. Use the same amount of water that is called for in the package directions when cooking the cereal.
- *In milkshakes:* For a thicker and more nutritious milkshake, add 1 or 2 tablespoons of nonfat dry milk powder.
- *In coffee or tea:* Substitute nonfat dry milk powder for non-dairy creamer for more calcium and no fat.
- *In soups:* Add 1/2 cup nonfat dry milk powder to one can (10 3/4 oz.) of soup plus a can of water.
- *In mashed potatoes:* Add 1/3 cup of nonfat dry milk powder for each 4 servings.

Smoothies and Sippers

Apricot Cooler

1/3 cup nonfat dry milk powder

1/2 cup canned apricots, drained

1 cup cold water

Put ingredients in blender or food processor and blend until smooth.



Orange Cow

1/3 cup nonfat dry milk powder

3 tablespoons frozen orange juice concentrate

1 cup cold water

Put ingredients in jar with tight-fitting lid and shake.

For a purple cow: Substitute grape juice concentrate for the orange juice.

Yogurt-Fruit Smoothie

1/4 cup strawberry or strawberry-banana yogurt

1/3 nonfat dry milk powder

1/2 banana

3/4 cup orange juice

1/2 cup strawberries (optional)

Put ingredients in blender or food processor and blend until smooth.

Hot Chocolate Mix

2 cups nonfat dry milk powder
1/3 cup cocoa
2/3 cup sugar
dash salt



Combine dry milk, cocoa, sugar and salt; store in airtight container, jar or coffee can. To use: put 1/4 cup mix in cup. Gradually stir 6 oz. (3/4 cup) hot (not boiling) water into mix.

Rice-Cheese Casserole*

2 eggs, slightly beaten
3 tablespoons butter or margarine, melted
2 cups water
2 cups cooked rice
1 cup soft bread crumbs
1 cup nonfat dry milk powder
1 cup shredded American or cheddar cheese
1 tablespoon finely chopped onion
1/2 teaspoon salt (optional)

Preheat oven to 325° F. Grease a 2-quart casserole dish or 8x8-inch pan. In large bowl, stir together all ingredients; transfer to prepared pan. Bake for 40-50 minutes until set and golden brown.

Salmon Loaf*

1 egg, slightly beaten
2/3 cup nonfat dry milk powder
1 tablespoon finely chopped onion
1/4 teaspoon salt
dash pepper
4 medium slices bread, torn into small pieces
1 16-ounce can salmon

Preheat oven to 350° F. Grease a 9x5x3-inch loaf pan. In large bowl, combine egg, milk powder, onion, salt, pepper and bread. Drain salmon, saving 1/4 cup liquid. Mash salmon and soft bones and add to bread mixture along with reserved liquid. Stir until combined and bread has absorbed liquid. Pat evenly into prepared pan. Bake for 25-30 minutes.

Meat Balls (or Meat Loaf)*

1/3 cup water
2 slices bread, torn into small pieces
2/3 cup nonfat dry milk powder
2 tablespoons chopped onion
1 egg
1/2 teaspoon salt (optional)
1 pound lean ground beef



Preheat oven 350° F. Pour water over bread; stir in nonfat dry milk, onion, egg and salt. Add ground beef and blend. Shape meat mixture into 1-inch balls, place on baking sheet or shallow pan; bake for 30 minutes. If desired, freeze cooked meatballs in self-sealing bag for up to 3 months. Reheat in spaghetti sauce and serve over noodles or in hot dog buns or hoagie rolls.

For meatloaf: Pat meat mixture into a 9x5x3-inch loaf pan and bake it for about 50 minutes. Cool 10 minutes before slicing.

Banana Bread**

2 cups flour
2/3 nonfat dry milk powder
2 teaspoons baking powder
1/2 teaspoon cinnamon
2 eggs
2 cups (about 4 medium) mashed ripe bananas
1 cup sugar
1/2 cup vegetable oil
1 cup chopped walnuts (optional)



Preheat oven to 350° F. Grease 9x5x3-inch loaf pan. In medium bowl, stir together flour, dry milk, baking powder and cinnamon. In large bowl, beat eggs, bananas, sugar and vegetable oil. Gradually add flour mixture; stir in nuts. Spoon into prepared pan. Bake for 60-70 minutes or until wooden pick inserted near center comes out clean. Cool in pan for 10 minutes; remove to wire rack to cool completely.

Corn Bread**

1 1/2 cups flour
1 cup yellow or white corn meal
1/2 cup sugar
1/2 cup nonfat dry milk powder
1 tablespoon baking powder
1 teaspoon salt
1 1/2 cups water
1/3 cup vegetable oil
1 egg, slightly beaten



Preheat oven to 400° F. Grease 9x9-inch square pan. Combine flour, cornmeal, sugar, dry milk, baking powder and salt in large bowl; stir well. Stir in water, vegetable oil and egg just until blended. Pour into prepared pan. Bake for 20 to 25 minutes or until wooden pick inserted in center comes out clean. Serve warm.

* Adapted with permission from Iowa State University Extension, Ames, IA.

** Adapted with permission from Nestle USA.

Dry Milk Powder – Good for You and Easy to Use

Making dry milk

1/3 cup dry milk powder + 1 cup water = 1 cup milk

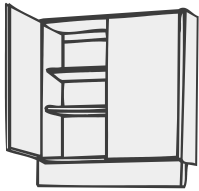


1 1/3 cup dry milk powder + 3 3/4 cups water = 4 cups (1 quart) milk



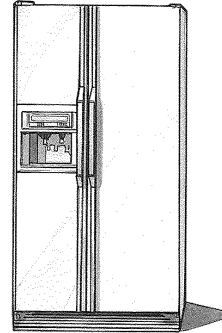
Use clean drinking water.

Storing dry milk



Keep the nonfat dry milk powder cool and dry.

After you mix it, drink it or keep it in the refrigerator.



Dry Milk Powder – Recipes Made Easy



Rice Pudding

At dinnertime, make extra rice and use it to make this dessert.

- 2 cups cooked rice
- 1 cup nonfat dry milk powder
- 1/2 cup sugar
- 1/4 teaspoon salt
- 3 cups water
- 1 egg, slightly beaten
- 1 tablespoon butter or margarine
- 1 teaspoon vanilla extract

In a medium saucepan, combine rice, dry milk, sugar, salt and water. Bring to a boil, then cook over medium heat until thick and creamy, about 20-25 minutes, stirring often. Add egg, stir and cook for

3 more minutes. Remove from heat, stir in butter and vanilla. Pour into serving dish. Serve warm or cold. Makes 6 servings.

You can add 1/4 cup raisins, 1/4 cup drained canned pineapple chunks or 1/2 teaspoon cinnamon after you stir in the butter and vanilla.



Peanut Butter Balls

This is a good snack!

- 1/4 cup peanut butter
- 1/4 cup honey
- 1/2 cup nonfat dry milk powder
- 1/2 cup crushed cereal flakes

Mix peanut butter, honey and dry milk in a bowl. Shape into 1-inch balls. Roll in cereal. Chill until firm for 1/2 hour or longer.

